

Investigation on *Moringa oleifera* extracts function to reduce microbial load in water treatment

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ABSTRACT

Reduction of raw water microbial load during water treatment process has important advantages such as decreasing algal and microbial growth in the water treatment plant, control of bacterial toxins leaching in water, and decreasing the amount of disinfectant usage. Application of ferric and other metallic coagulants for water coagulation has some disadvantages, therefore the natural coagulants may be compatible with these. In this study, the efficiency of natural coagulant extracted from *Moringa oleifera* seed was compared with FeCl₃ as a metallic coagulant in reduction of microbial load during water treatment process. Both, *M. oleifera* extract and FeCl₃ were applied in dosage of 1.5 up to 4 mg/L and then, microbial load, total and fecal coliforms and *Clostridium perfringens* were measured before and after coagulants application. The results did not show any significant differences between *M. oleifera* extract and FeCl₃ efficiency in reduction of fecal and total coliforms. But, *M. oleifera* extract was more efficient than FeCl₃ in removal of *C. perfringens*' spores significantly. It may be due to adsorption of spores on polypeptide structure of *M. oleifera* extract. Furthermore, there isn't any risk of disinfection by-products' formation such as trihalomethanes by well purification of *M. oleifera* extract before usage.

Keywords: *Moringa oleifera*; *Clostridium perfringens*; Water treatment; Microbial load

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